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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,874

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Patrick Ferguson

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BARLOW, JOSEPHS & HOLMES, LTD.
101 DYER STREET
5TH FLOOR
PROVIDENCE, RI 02903

EXAMINER

MAZUMDAR, SONYA

ART UNIT

PAPER NUMBER

1791

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,874	Applicant(s) FERGUSON ET AL.	
	Examiner SONYA MAZUMDAR	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 8-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Addition of claims 17-30 have been acknowledged.

Response to Arguments

2. Applicant's arguments and amendments, with respect to the rejection of claims 1-5 and 8-16, have been considered but are moot in view of the new grounds of rejection.

With respect to claims 1 and 15, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, because Neri et al. does not teach using a flexible heating element, the admitted prior art and the teachings of Koch et al. (US 5,630,894) are used to show that it is known in the art to use a flexible heating element to transfer a decal.

With respect to the first argument against the rejection of claims 11, 12, and 14, the last three digits of the reference by Neri et al. was provided in the rejection of the previous action, which is US Publication No. 2002/0131062. Furthermore, the newly added reference, by Koch et al., addresses providing a flexible heating element for the transfer of decals (abstract; column 3, line 61 – column 4, line 18). Thus, the rejections of claims 11, 12, and 14 are maintained.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 17 through 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 17 and 27 recite the limitation "the flexible heating element" in line 14 of each claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1, 2, 3, 9, 15 and 16 are rejected under 35 U.S.C. 103(a) as being obvious over Neri et al. (US 2002/0131062) in view of the admitted prior art and Koch et al. (US 5,630,894)

With respect to claims 1, 2, and 15, Neri et al. teach a method of printing an image onto a plastic three-dimensional surface with non-planar surfaces by a dye-bearing, imaged carrier sheet. A flexible membrane is lowered over the three-dimensional object with the image carrier sheet thereon. A vacuum is established and the membrane, image carrier sheet, and object are heated by radiant heating elements to cause the image from the carrier sheet to transfer into the surface the carrier sheet is on (abstract; paragraphs 0006-0007; Figure 6).

Neri et al. do not teach placing an image carrier sheet with a flexible heating element and passing electricity through the heating element to cause its temperature to rise. However, it would have been obvious to, as the admitted prior art teach that it is known to use an image carrier sheet comprising a metallized fabric substrate with a photochemically-etched electrical circuit therein (page 12, line 24 – page 13, line 6 and page 13, lines 12-14) and Koch et al. teach providing a flexible heating pad for the transfer of decals (abstract; column 3, line 61 – column 4, line 18). One would have been motivated to do so since providing heating elements with a carrier which would provide flexibility to transfer decals onto the contour of complex and curvilinear objects (Koch: column 2, lines 60-67).

With respect to claim 3, Neri et al. teach an image carrier sheet comprising of a film or fabric (paragraph 0033).

With respect to claims 9 and 16, Neri et al. teaches that an image carrier sheet is heated to make it more flexible after a flexible membrane is lowered over the carrier sheet and prior to establishing a vacuum (abstract).

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9. Claims 1, 2, 3, 9, 15 and 16 are rejected under 35 U.S.C. 103(a) as being obvious over Neri et al. (US 7,267,737) in view of the admitted prior art and Koch et al.

With respect to claims 1, 2, and 15, Neri et al. teach a method of printing an image onto a plastic three-dimensional surface with non-planar surfaces by a dye-bearing, imaged carrier sheet. A flexible membrane is lowered over the three-dimensional object with the image carrier sheet thereon. A vacuum is established and the membrane, image carrier sheet, and object are heated by radiant heating elements to cause the image from the carrier sheet to transfer into the surface the carrier sheet is on (abstract; column 3, lines 61-65; Figure 6).

Neri et al. do not teach placing an image carrier sheet with a flexible heating element and passing electricity through the heating element to cause its temperature to rise. However, it would have been obvious to, as the admitted prior art teach that it is known to use an image carrier sheet comprising a metallized fabric substrate with a photochemically-etched electrical circuit therein (page 12, line 24 – page 13, line 6 and page 13, lines 12-14) and Koch et al. teach providing a flexible heating pad for the transfer of decals (abstract; column 3, line 61 – column 4, line 18). One would have been motivated to do so since providing heating elements with a carrier which would provide flexibility to transfer decals onto the contour of complex and curvilinear objects (Koch: column 2, lines 60-67).

With respect to claim 3, Neri et al. teach an image carrier sheet comprising of a film or fabric (column 7, line 64 – column 8, line 2).

With respect to claims 9 and 16, Neri et al. teaches that an image carrier sheet is heated to make it more flexible after a flexible membrane is lowered over the carrier sheet and prior to establishing a vacuum (abstract).

10. Claims 1, 2, 3, 9, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hastie et al. (WO 01/96123) in view of Neri et al. (US '062), the admitted prior art and Koch et al.

With respect to claims 1, 2, 3, 9, 15, and 16, Hastie et al. teach a method of printing an image onto a plastic three-dimensional surface with non-planar surfaces by a printed transfer element (abstract; page 1, paragraph 1). The printed transfer element is placed over the object, which has a receptor coating, and is heated to make it more flexible. The transfer element is vacuum formed onto the surface and heated to at least partially transfer the image from the transfer element to the object (abstract; page 2, paragraph 5 – page 3, paragraph 2; page 4, paragraph 1).

Hastie et al. do not specifically teach using a flexible membrane over a printed transfer layer atop a three-dimensional surface. Neri et al. teach a method of printing an image onto a plastic three-dimensional surface with non-planar surfaces by a dye-bearing, imaged carrier sheet. A flexible membrane is lowered over the three-dimensional object with the image carrier sheet thereon. A vacuum is established and the membrane, image carrier sheet, and object are heated by radiant heating elements to cause the image from the carrier sheet to transfer into the surface the carrier sheet is on (abstract; paragraphs 0006-0007; Figure 6).

It would have been obvious for Hastie et al. to teach using a flexible membrane used in the vacuum forming step in transfer printing as Neri et al. taught and would have been motivated to do so to vacuum form surfaces of different shapes and sizes, and furthermore, the flexible membrane is matched with the heating elements so that it is specifically absorptive to radiation within the wavelength range emitted therefrom to achieve optimum heating efficiency (Neri: paragraph 0006).

Neri et al. do not teach placing an image carrier sheet with a flexible heating element and passing electricity through the heating element to cause its temperature to rise. However, it would have been obvious to, as the admitted prior art teach that it is known to use an image carrier sheet comprising a metallized fabric substrate with a photochemically-etched electrical circuit therein (page 12, line 24 – page 13, line 6 and page 13, lines 12-14) and Koch et al. teach providing a flexible heating pad for the transfer of decals (abstract; column 3, line 61 – column 4, line 18). One would have been motivated to do so since providing heating elements with a carrier which would provide flexibility to transfer decals onto the contour of complex and curvilinear objects (Koch: column 2, lines 60-67).

With respect to claim 3, Hastie et al. in view of Neri et al., the admitted prior art, and Koch et al. teach an image carrier sheet comprising of a film or fabric (Neri: paragraph 0033).

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neri et al. (US '062) in view of the admitted prior art, and Koch et al. as applied to claim 1 above, and further in view of Geary (US 3,956,552).

Neri et al. in view of the admitted prior art and Koch et al. do not teach transfer printing onto a fabric. However, Geary teaches decorating a garment (G) by using heat and vacuum pressure via an open mesh carrier cloth, as the cloth would help avoid any residue on background areas of a surface after transfer and also ensure the transfer is less sensitive to temperature of the heat source, the pressure applied, and the dwell time (Geary: column 2, lines 35-38 and lines 42-45).

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neri et al. (US '062) in view of the admitted prior art, and Koch et al. as applied to claim 1 above, and further in view of Kitagawa (US 5,090,122)

The teachings of claim 1 are as described above.

Neri et al. in view of the admitted prior art and Koch et al. do not specifically teach coating an etched metallized fabric with a heat-resistant, electrically-insulating lacquer. However, it would have been obvious to do so, as taught by Kitagawa, and would have been motivated to do so as an improved alternative to electroless plating (Kitagawa: column 1, lines 8-35; column 2, line 56).

13. Claims 11, 12, and 14 are rejected under 35 U.S.C. 103(a) as being obvious over Neri et al. in view of the admitted prior art, and Koch et al.

With respect to claim 11, Neri et al. teach a method of printing an image onto a plastic three-dimensional surface with non-planar surfaces by a dye-bearing, imaged carrier sheet. A flexible membrane is lowered over the three-dimensional object with the image carrier sheet thereon. A vacuum is established and the membrane, image carrier sheet, and object are heated by radiant heating elements to cause the image

from the carrier sheet to transfer into the surface the carrier sheet is on (abstract; paragraphs 0006-0007; Figure 6).

Neri et al. do not teach placing an image carrier sheet with a flexible heating element and passing electricity through the heating element to cause its temperature to rise. However, it would have been obvious to provide flexible heating elements with a membrane, the admitted prior art teaches that it is known to use a metallized fabric mesh sheet with a photochemically-etched electrical circuit therein as a heating element (Applicant's specification: page 12, line 24 – page 13, line 6) and Koch et al. teach providing a flexible heating pad for the transfer of decals (abstract; column 3, line 61 – column 4, line 18).

With respect to claim 12, Neri et al. teaches that an image carrier sheet is heated to make it more flexible after a flexible membrane is lowered over the carrier sheet and prior to establishing a vacuum (abstract).

With respect to claim 14, Neri et al. in view of the admitted prior art, and Koch et al. teach using a flexible heating element comprising silicone rubber (column 2, lines 29-31).

Allowable Subject Matter

14. Claims 17 through 30 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

15. Claims 10 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

There are no prior art teachings found where a membrane, with or without carrying flexible heating elements, is pre-heated prior to establishing a vacuum to transfer an image from a carrier sheet to an object.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SONYA MAZUMDAR whose telephone number is (571)272-6019. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SM

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791